REMARKS

ISSUE NO. 1 - §102 AND 103 REJECTION OF CLAIMS 1, 2, 9 AND 12 BASED ON APPLICANT'S ADMITTED PRIOR ART

Claims 1, 2, 9 and 12 are rejected under 35 USC §102(b) as being anticipated by Admitted Prior Art (Fig. 1, Page 1 of the Applicant's disclosure) or, in the alternative, under 35 USC §103(a) as obvious over Admitted Prior Art. The Applicants respectfully disagree.

Amended Claim 1 recites:

"A plating system comprising:

an elongated upper channel formed by a plurality of upper shields and an elongated lower channel formed by a plurality of lower shields, wherein each channel is separated by a gap between the upper and lower shields; and

a plating solution horizontal sparger comprising a series of inlets oriented to direct any plating solution flowing through the inlets directly into one and towards another of the upper and lower channels."

As pointed out in the Specification, an improved plating system 100 is shown in **Figure 2** which provides for improved metal distribution over a work piece 900. In the improved system 100, the vertical spargers (spargers 11 in **Figure 1**) found in prior art plating systems are eliminated and fluid 800 enters the chamber 120 through the bottom of the chamber with the bottom of the chamber acting as a horizontal sparger 110. By eliminating the vertical spargers, the distance D2 between the part being plated 900 and the shields 130 can be decreased (with a corresponding decrease in the distance D4 between the fields forming the sides of the channel).

As the Specification also specifically points out, the system of **Figure 2** may be obtained by modifying the system of **Figure 1** (a Technic Inc. MP 300 – and Applicant's Admitted Prior Art) in the following manner: (1) eliminating the tubular vertical solution spargers and replacing them with holes 111 fabricated in the lower plenum so that solution travels around the parts to be plated as a turbulent flow from the bottom of the parts to the tops, and not from the sides; (2) increasing the solution velocity; (3) moving the shields closer to the parts to be plated (cathodes); (4) incorporating part holding clamps sufficiently narrow so as to adequately hold the part while still permitting the claims and parts to move between the shields; and (5) incorporating a double rinsing and drying process where the plating/part holding fixture is rinsed and dried first, and the plated part and lower half of the fixture are subsequently rinsed and dried. These modifications to the Technic system render the claims of the current application patentable as not anticipated by Technic, because Technic cannot possibly anticipate the modifications disclosed in the current system and recited in the claims.

The Applicant believes, after reviewing the Examiner's Answer, that the Examiner is merely assembling puzzle pieces to arrive at a whole "prior art reference", and the Examiner is also improperly deconstructing claim 1 of the present application to arrive at the goal the Examiner wishes to reach.

REVIEW OF PENDING CLAIM 1 "AS A WHOLE"

First, it is important to read claim 1 ***as a whole***. Claim 1 states that a plating system comprises the following: a) an elongated upper channel and an elongated lower channel; and b) a plating solution horizontal sparger comprising a series of inlets oriented to direct any plating solution flowing through the inlets ***into one*** and ***towards another*** of the upper and lower channels. (emphasis added) The Examiner states that the "comprising" language means that Claim 1 could include vertical spargers attached to the series of inlets, and therefore, Claim 1 reads on Applicant's Admitted Prior Art. This analysis and

result is inherently faulty. That provision – as a whole – states "a plating solution horizontal sparger comprising a series of inlets oriented to direct any plating solution flowing through the inlets into one and towards another of the upper and lower channels". Two things are apparent from a fair reading of this claim: 1) the plating solution is flowing through the inlets and into one of the channels – not into a sparger and then into a channel, and 2) the plating solution is flowing into one of the channels and toward another channel – not flowing toward the face of the piece to be plated, as is the case with Applicant's Admitted Prior Art.

INCORRECT ASSERTION OF OMISSION OF ELEMENTS AND FUNCTIONS AS OBVIOUS

Second, the Applicant would like to address a comment by the Examiner from the November 13, 2006 Office Action, page 3, last paragraph. The Examiner states the following:

> "Moreover, it would have been obvious to one having ordinary skill in the art to have omitted the vertical spargers if uniform direct flow to the plating substrate is not desired. According to MPEP 2144.04, omission of an element and its function is obvious if the function of the element is not desired."

This statement by the Examiner is quite significant and wholly incorrect. The polybasic acid salts in the MPEP example were not desired or required, such as in compositions for providing corrosion resistance in environments which do not encounter fresh water. Therefore, if the fresh water is removed – there is no need for the salts. The sparger function of the Applicant's Admitted Prior Art was not removed – it was just redesigned to operate differently and more efficiently. But, the function of the sparger – to direct fluid into or onto an area or surface was kept in the Applicant's embodiment. The Examiner's attention is drawn to the immediately following paragraph in that same section of the MPEP:

> Note that the omission of an element and retention of its function is an indicia of unobviousness. *In re Edge*, 359 F.2d 896, 149 USPQ 556 (CCPA 1966) (Claims at issue were directed to a printed sheet having a thin layer of erasable metal bonded directly to the sheet wherein said thin layer obscured the original print until removal by erasure. The prior art disclosed a similar printed sheet which further comprised an intermediate transparent and erasure-proof protecting layer which prevented erasure of the printing when the top layer was erased. The claims were found unobvious over the prior art because the although the transparent layer of the prior art was eliminated, the function of the transparent layer was retained since appellant's metal layer could be erased without erasing the printed indicia.).

In this case, an element has been removed, but the function of a sparger has been retained. The Examiner again is clearly piecing together puzzle pieces to arrive at a desired result, instead of examining the claim and the Applicant's application as a whole. This action on the Examiner's part is improper hindsight examination and should be rejected by the Board.

CONCLUSION

Based on this argument, along with the arguments presented in the Applicant's Appeal Brief, Applicant's Admitted Prior Art does not anticipate claim 1 of the present application because Applicant's Admitted Prior Art is lacking and/or missing at least one specific feature or structural recitation found in the present application, and in claim 1. Claim 1 is therefore allowable as not being anticipated by Applicant's Admitted Prior Art. Further, Applicant's Admitted Prior Art does not anticipate claims 2, 9 and 12 of the present

application by virtue of their dependency on claim 1.

In addition, Applicant's Admitted Prior Art cannot render unpatentable claim 1 of the present application, because one of ordinary skill in the art cannot possibly review the Admitted Prior Art on its face and, remove the vertical spargers, place horizontal spargers in the bottom of the chamber and arrive at claim 1.

ISSUE NO. 2 - §103 (A) REJECTION OF CLAIMS 1-15 BASED ON APPLICANT'S ADMITTED PRIOR ART IN VIEW OF LACE ET AL.

Claims 1-15 are rejected under 35 USC §103(a) as being unpatentable over Admitted Prior Art in view of Lace et al. The Applicants respectfully disagree, and claim 15 is canceled herein.

Amended Claim 1 recites:

"A plating system comprising:

an elongated upper channel formed by a plurality of upper shields and an elongated lower channel formed by a plurality of lower shields, wherein each channel is separated by a gap between the upper and lower shields; and

a plating solution horizontal sparger comprising a series of inlets oriented to direct any plating solution flowing through the inlets directly into one and towards another of the upper and lower channels."

As pointed out in the Specification, an improved plating system 100 is shown in **Figure 2** which provides for improved metal distribution over a work piece 900. In the improved system 100, the vertical spargers (spargers 11 in **Figure 1**) found in prior art plating systems are eliminated and fluid 800 enters the chamber 120 through the bottom of the chamber with the bottom of the chamber acting as a horizontal sparger 110. By eliminating the vertical spargers, the distance D2 between the part being plated 900 and the shields 130 can be decreased (with a corresponding decrease in the distance D4 between the fields forming the sides of the channel).

As the Specification also specifically points out, the system of **Figure 2** may be obtained by modifying the system of **Figure 1** (a Technic Inc. MP 300 – and Applicant's

Admitted Prior Art) in the following manner: (1) eliminating the tubular vertical solution spargers and replacing them with holes 111 fabricated in the lower plenum so that solution travels around the parts to be plated as a turbulent flow from the bottom of the parts to the tops, and not from the sides; (2) increasing the solution velocity; (3) moving the shields closer to the parts to be plated (cathodes); (4) incorporating part holding clamps sufficiently narrow so as to adequately hold the part while still permitting the claims and parts to move between the shields; and (5) incorporating a double rinsing and drying process where the plating/part holding fixture is rinsed and dried first, and the plated part and lower half of the fixture are subsequently rinsed and dried. These modifications to the Technic system render the claims of the current application patentable over Technic, because Technic cannot possibly render unpatentable the modifications disclosed in the current system and recited in the claims, because one of ordinary skill in the art would not view the Admitted Prior Art alone or in combination with Lace and arrive at the present disclosure or claims.

The Applicant believes, after reviewing the Examiner's Answer, that the Examiner is merely assembling puzzle pieces to arrive at a whole "prior art reference", and the Examiner is also improperly deconstructing claim 1 of the present application to arrive at the goal the Examiner wishes to reach.

REVIEWING THE INDEPENDENT CLAIMS AS A WHOLE

First, it is important to read claim 1 ***as a whole***. Claim 1 states that a plating system comprises the following: a) ***an elongated upper channel and an elongated lower channel***; and b) a plating solution horizontal sparger comprising a series of inlets oriented to direct any plating solution flowing ***through the inlets into one*** and ***towards another*** of the upper and lower channels. (emphasis added) The original specification, on page 4, states that the shields 130 form narrow upper and lower plating channels through which the parts being plated move with each part having one edge positioned within the upper plating channel and an opposite edge positioned within the lower plating channel. Two things are

apparent from a fair reading of this claim: 1) a distinct/separate elongated upper channel is formed and a distinct/separate elongated lower channel is formed, and 2) the plating solution is flowing into one of the channels and toward another channel – not flowing toward the face of the piece to be plated, as is the case with Applicant's Admitted Prior Art.

THE LACE REFERENCE & MOTIVATION TO COMBINE

Lace et al. (US Patent 4772371) discloses an electroplating apparatus for high-speed electroplating a cathodic strip of metal passed therethrough. The Lace reference discloses electrolyte fluid holes under the shield (Reference Number 46 in Figure 2 of Lace), but the fluid is not directed into one of an elongated upper channel or an elongated lower channel and towards the other, as claim 1 recites. Given that the shields are positioned *completely perpendicular* to the cathode and anode, and that the cathode physically travels through the middle of the shield, it isn't clear why one of ordinary skill in the art would review Lace and just pull out the idea of an electrolyte fluid hole at the bottom of the compartment. There must be some motivation in Applicant's Admitted Prior Art that would lead to a combination with Lace, and given that the arrangement is Lace is completely different from anything shown in Applicant's Admitted Prior Art – the Applicant is not seeing the motivation to combine.

One interesting note in the motivation to combine debate is that if Lace included vertical spargers in a position to direct flow onto the cathodic strip (Reference Number 66 in Figure 1 of Lace), those spargers would be in position in each chamber formed by the electrically insulating shields (Reference Number 46 in Figure 2 of Lace), positioned to hit the cathode with electrolyte fluid as it exits the shield, and wouldn't require that the chambers be enlarged at all, based on the Figures shown (see specifically the space formed between the anodes 68 and 70 and the electrolyte fluid hole (not so numbered in Figure 2) on the bottom of the chamber). In the current application, one of the features of the horizontal spargers is to narrow the upper and lower channels by bringing the shields closer to the cathode, which is claimed in the dependent claims of the present application.

That feature would not be necessary nor chosen in Lace, because the shield is perpendicular to the cathode, which moves right through the middle of the shield. The problem solved by Lace is really completely different that the problem solved by the current application and Claims 1 and 15, and therefore, one of ordinary skill in the art wouldn't read Lace with the motivation to combine it with Applicant's Admitted Prior Art to solve the problem that Claim 1 solves in the current application.

DEVELOPMENT OF TECHNIC MP 300 PLATING SYSTEM

In addition, the Examiner cites the Applicant's Admitted Prior Art as the primary reference -- the Technic MP 300 system, and then states that this system does not explicitly disclose the flow is in a plane substantially coplanar with the cathode. The Examiner then relies on the disclosure of Lace et al. to fill that gap in the Applicant's Admitted Prior Art. It is interesting to note that the Lace reference was issued in 1988. The Technic MP 300 development followed the issuance of the Lace reference, along with the issuance of several patents directed to vertical spargers, including US 5985123. Those of ordinary skill in the art of continuous plating obviously didn't consider Lace during the development of the Technic MP 300 or, according to the Examiner's logic, they would have obviously used the horizontal sparger system developed by the Applicants. This analysis applies directly to the continuing conversation directed to a motivation to combine the references, which the Applicants continue to assert just isn't apparent.

IMPROPER HINDSIGHT RECONSTRUCTION

So, the question becomes whether the Examiner is improperly combining the references, without apparent motivation, through hindsight reconstruction. The Federal Circuit stated in *In re* Fritch, 972 F.2d 1260, 23 USPQ2d 1784 (Fed. Cir. 1992)(quoting *In re* Fine, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988)):

> "It is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that "[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention".

The Court then said in *In re* Dembiczak (175 F.3d 994, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999) (citing W.L. Gore & Assocs. v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 313 (Fed. Cir. 1983)), cert denied, 469 US 851 (1984)): "measuring a claimed invention against the standard established by section 103 requires the oft-difficult but critical step of casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and then accepted wisdom in the field." Close adherence to this methodology is especially important in the case of less technologically complex inventions, where the very ease with which the invention can be understood may prompt one "to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against the teacher." (*In re* Dembiczak) A general relationship between fields of the prior art references to be combined is insufficient to establish the suggestion or motivation. (See, e.g. C. R. Bard, Inc. v. M3 Sys., Inc., 157 F3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998). The Court in Mc Ginley v. Franklin Sports Inc., 262 F.3d 1339, 60 USPQ2d 1001, 1008 (Fed. Cir. 2001) (citing Gambro Lundia AB v. Baxter Healthcare Corp., 110 F3d 1573, 1579, 42 USPQ2d 1378, 1383 (Fed. Cir. 1997) stated:

> "The genius of invention is often a combination of known elements which in hindsight seems preordained. To prevent hindsight invalidation of patent claims, the law requires some "teaching, suggestion or reason" to combine cited references...When the art in question is relatively simple, as is the case here, the opportunity to judge by hindsight is particularly tempting. Consequently, the tests of whether to combine the references need to be applied rigorously."

The invention that was made, however, does not make itself obvious; that suggestion or teaching must come from the prior art. (See, e.g. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051-52, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988)). This standard would also be acceptable under the KSR v. Teleflex obviousness standard.

Given that the Technic MP 500 was developed "Post Lace", the problems to be solved in Lace and Applicant's Admitted Prior Art were different, and other art in the field were developing these plating systems in the same manner as Technic, it stands to reason that the accepted wisdom in the field was not considering Lace as a viable option to utilize in the system developed by Technic (Applicant's Admitted Prior Art). In addition, it would stand to reason that Lace was not a viable option to utilize in combination with the Applicant's Admitted Prior Art (Technic MP 500) in the system developed by the current Applicants.

REQUEST FOR ALLOWANCE

Claims 1-14 are pending in this application, and the Applicant respectfully requests that the Examiner reconsider all of the claims in light of the arguments presented and allow all current and pending claims.

Respectfully submitted,
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